Improving Navigation: Statehood to World War 1,1846-1914

Annexation to the United States in December, 1845, brought on a war with Mexico for the next two years. The war stimulated business and commerce and brought new people to the bay area, some of whom stayed because of the economic promise. For example, two northern entrepreneurs erected a 42-inch Tyler steam cotton press in 1846 at Galveston at the foot of 25th Street capable of processing 500 bales per day, far surpassing older presses. The partners also contracted with a Trinity River boat builder for a 110-foot-long steamboat drawing 4 1/2 feet to carry 1,000 bales of cotton (Hayes, 1974:713, 920-21; Block, 1988:25).

The 1850 United States census for Galveston County revealed the importance of maritime activity because Galveston was the largest town in Texas with 4,177 people *(Texas Almanac,* 1964-1965:123-125). Twenty-four men were listed as mariners including a number of well-known ship captains and about the same number of seamen. The difference in nomenclature is clear in the population schedule: mariners were usually householders with families-captains of vessels who resided in the port. Seamen, on the other hand, were the more transitory deck hands, single men living in boarding houses and hotels near the wharves. The five men listed as boatmen can be presumed to be the skippers of small sloops that ferried people to the mainland and around the port. The harbor employed three pilots, even then a status position requiring long experience to understand the shifting sand bars and the various deep-water channels at the entrance to Galveston Bay. The increasing maritime activity prompted the United States to provide a lightship at the entrance to the bay which was manned by four foreign-born hands under the direction of a long-time local mariner. There were three ship carpenters and many plain carpenters while cabinet makers and painters living near the wharves probably were associated with boat building. There were also: one ship-rigger, five sailmakers, three coopers, and one ropemaker. Commercial fishing was a recognized activity with five "fishermen," all foreign-born as was the single "oysterman" (United States Bureau of the Census, 1850: Galveston).

The Harris County census reveals a number of small boatyards around the San Jacinto estuary by the presence of four shipwrights. Several men were "sailors" along with one "master of a schooner." Most of the residents around Trinity Bay and the mouth of the river in what was still Liberty County (Chambers County was created in 1858) claimed to be farmers and ranchers but there were a few "boatmen" and several carpenters who probably built boats (United States Bureau of the Census, 1850: Harris and Liberty counties).

These census statistics show that in the 1850s the bay functioned primarily as a transportation system but that a small number of persons were commercial fishermen. Given the rural nature of the bay shore at this time, one can assume that fishing like hunting was also a normal activity of many individuals living in the vicinity. In general seafood would have to be consumed immediately because salting and drying were the only means of preservation at that time. The maritime activity, in turn, provided many area residents with the means of their livelihood beyond seamen and boat builders; supplying the vessels with wood, water, and food at the various stops was a way farmers could earn money.

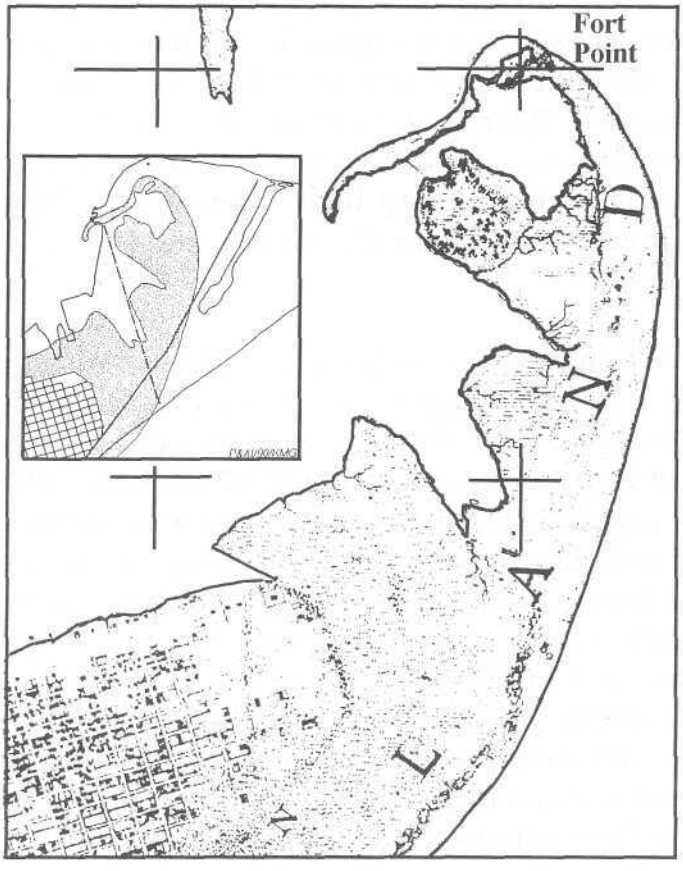

Illustration 9a.-East End of Galveston Island (1850). (Source: Freeman and Hannam, 1991.)

Steamboat travel was quick and easy but not safe. The high pressure engines used at this time had no safety devices and serious accidents occurred when boilers exploded. The first such disaster took place in December, 1841, when the *Albert Gallatin* exploded enroute to Galveston about six miles from its destination. Five persons were killed and nine wounded. The survivors were picked up by another steamer (Hayes, 1974:124). Another cause of accidents was rivalries between captains who would race their boats between Houston and Galveston just as their counterparts did on the Mississippi River and elsewhere. In January, 1853, the *Neptune* and the *Farmer* raced towards Galveston sometimes touching sides. While neither vessel was injured on that trip, two months later the *Farmer's* boiler blew up near Pelican Island killing perhaps thirty-six people including the captain and twelve crew members (Sibley, 1968:71.)

Improved Navigation in the 1850s

The hoped-for navigational aids were slow in coming after annexation due in part to the war with Mexico. By 1850, however, the U. S. Army Corps of Engineers began the surveys that resulted in the periodic publishing of updated charts detailing Galveston Bay. These charts showed the depth of the bay and its channels, buoys and lights, and hazards such as shipwrecks and shoals. They also marked wharves and piers plus giving a grid of towns and roads along the shore. The directions for entering Galveston Harbor

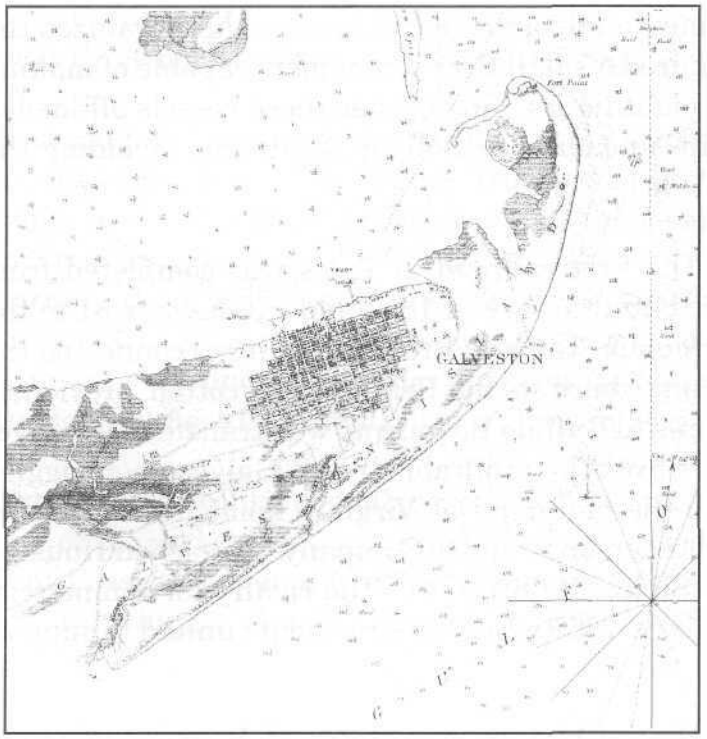

Illustration 9b.-Galveston Entrance (1856).
(Source: U.S. Government.)

included sighting landmarks in the town such as the church spire and the market house belfry which were shown on the grid.

Responding to the demands of mariners and shippers, the Galveston *Lightship,* a newly built east coast schooner, arrived in October, 1849, and anchored about a mile off the outer bar. Its single white light at the top of the mast served as a beacon but soon it was moored inside the bar due to the rough seas. In 1859, lighted range beacons were placed on Bird Key, Pelican Spit, and in shallow water off Bolivar to aid vessels searching for the channel. The government erected a cast-iron light house sixty-five feet tall on Bolivar Point in 1852, but complaints that it was inadequate led to improvements in 1858. Workers raised the tower to eighty-nine feet and installed a Fresnel lens and better lamps (Baker, 1991:52-53, 58-59).

While these improvements were financed by the United States government, the Texas legislature also was involved in improving the San Jacinto estuary. A rivers and harbors bill in 1853 and subsequent acts provided seed money but required local interests to contribute one-fourth of the costs. For example, Houston merchants subscribed sufficient funds to begin dredging through Cloppers and Red Fish bars in 1857 (Alperin, 1977:18-53). Houston commercial interests and the city also paid for deepening and straightening Buffalo Bayou above Harrisburg at this time (Sibley, 1968:69). Meanwhile, the federal government placed screwpile lights at Cloppers, Red Fish, and Fort Point on Galveston Island. These were wrought iron piles with oversized screws on the lower end which were twisted into sand and shell in shallow bays; a modest frame lighthouse with lanterns was erected on top (Baker, 1991:5).

Antebellum Rivalry between Houston and Galveston

The islanders and the residents of the Bayou City developed a bitter rivalry in order to dominate commerce. Most ships could enter Galveston's harbor through the natural channel, but only the shallow-draft river steamers could go up the bay to Houston. The Galveston Wharf Company, a combination of the owners of the various wharves, took advantage of their monopoly to set wharfage rates considered exorbitant by marine

interests. During the 1850s, Houston merchants and steamboat captains organized the Houston Navigation Company and acquired a small fleet of steamers capable of making the trip from Houston to the island in eight hours. Sometimes these vessels off-loaded goods and passengers to and from ships anchored in Bolivar Roads thus avoiding the Galveston wharf rates (Sibley, 1968:65-71).

A second rivalry involved railroads. The first railroad in Texas was completed from Harrisburg to the Brazos River in Fort Bend County in 1852 and extended west to the Colorado River by 1860. In 1856, the Houston Tap and Brazoria Railroad connected the lower Brazos with the Bayou City and Harrisburg so that Brazos valley cotton, previously consigned to Galveston, now rode the rails to Buffalo Bayou and was transferred to river steamers. This eliminated the islanders from the profitable trade. Galveston struggled to build a causeway from the island to the mainland at Virginia Point for its railway venture, the Galveston, Houston and Henderson Railway Company. It reached Houston in 1859 just in time for the Civil War (Sibley, 1968:72-74). The rivalry for commercial supremacy halted briefly between 1861 and 1865 when area residents united to support the Confederacy.

The Civil War and Galveston Bay

On March 2 (Texas Independence Day), 1861, even before the South Carolinians fired on Fort Sumter, Galveston volunteers seized the U. S. revenue cutter in the harbor, the customshouse, and the lighthouse supply ship that had just arrived with oil and other supplies for the harbor lights. They also occupied U. S. Army fortifications recently begun on Pelican Spit consisting of a two-story boarding house, a wharf, and "large quantities of reef-shell" accumulated for construction, a reference no doubt to the destruction of ancient middens. The Confederates removed the lights from the lighthouse (and dismantled the tower for scrap), the lightship, and all the markers from the channels to prevent easy access by the enemy (Hayes, 1974:487, 492; Baker, 1991:59).

The Confederates also seized vessels in the harbor, and in the case of two Yankee merchantmen, filled them with rubble and sank them on the inner bar to obstruct access to Galveston's channel. Confederate gun emplacements (some were "quaker" guns—logs painted black) stretched along the Gulf to Fort Point and were spotted in other strategic sites around the entrance to the harbor (Hayes, 1974:497- 501). Union vessels began blockading Galveston in July, 1861 and continued through May, 1865. On October 4, 1862, the blockading fleet entered Galveston Bay and disabled Fort Point's batteries. The federals demanded the surrender of the city within four days, a time used by the Confederates to remove artillery, military stores, families, and cattle to Virginia Point via the railroad bridge. The federals landed 150 marines at Kuhn's wharf and raised the U. S. flag for one-half hour before retreating to the eight or nine ships anchored in the Galveston channel from 25th Street to Fort Point. Except for one bombardment provoked

by a Confederate spy, Union troops remained quietly confined to their vessels for the next three months except for an occasional patrol (Hayes, 1974:518-26, 541-43).

Less than three months later, the Confederates mounted a successful New Year's Eve attack to recapture Galveston. Troops crossed the railroad bridge from Virginia Point while a small flotilla of merchant steamers and schooners descended the bay from Harrisburg. The machinery and sharpshooters were protected by bales of cotton, thereby earning the name of "cotton-clads." Shortly after dawn the surprise attack ended in victory. One large Union vessel was disabled and captured (and converted into a blockade runner) while another was destroyed by its commander to prevent surrender; the rest of the federal fleet fled the harbor (Hayes, 1974:551-66; Ziegler, 1938:303-04).

The blockade continued offshore but the Confederates occupied the island through the end of the war in 1865. Blockade runners darted in and out of Galveston Bay and San Luis Pass at the west end of the island taking cotton to market at Matamoros and Havana and returning with needed supplies (Hayes, 1974:513).

Navigational Improvements Dredging to Aid Commerce, 1866-1914

Commercial demands for deep-water shipping dominated the use of the bay in the late Victorian period. This was the so-called Gilded Age, the peak of the unhampered exploitation of natural resources when businessmen used their political influence to further their own interests in railroads, mining, timber, and heavy industry. Bay area entrepreneurs pressured Congress to deepen the channels and the entrance to Galveston Bay to accommodate the larger ocean vessels in order to increase commerce.

The commercial rivalry between the two port cities resumed after the war. Houstonians organized the Houston Direct Navigation Company, a consortium of merchants, boat owners, and captains, to run steamers and barges between Houston and Bolivar Roads by-passing Galveston. A parallel company with many of the same directors, the Buffalo Bayou Ship Channel Company, was formed to improve the bayou. The Houston interests acted quickly, hoping to take advantage of Galveston's temporarily clogged channel that had only 9 1/2 feet of water due to the wartime barriers. The main entrance channel from the Gulf was 12 feet deep, so if the Houstonians could dredge a 12-foot-deep channel to their town, even the largest ships could reach the Bayou City. The state granted permission for the private undertaking subject to approval by the state engineer (Sibley, 1968:87-88).

Politics and a lack of money delayed the project until the 1870s when dredging began at Morgan's Point and Red Fish Reef. The U. S. Congress finally appropriated funds for the Corps of Engineers to dredge a 6-foot-deep channel through Red Fish Reef in 1872 and two years later increased funding for a projected depth of 9 feet (Alperin, 1977:96-97;

Sibley, 1968:100). Shipping tycoon Charles Morgan of New York and New Orleans became interested in the project when the railroad in which he was an investor planned a new line to Houston. He was already annoyed by the charges levied by the Galveston Wharf Company and so joined the dredging effort in 1874 in order to circumvent the need for his ships to call at Galveston. Morgan agreed to dredge a 9-foot-deep channel 120 feet wide from upper Galveston Bay through Morgan's Point and up Buffalo Bayou to a railroad terminal opposite Harrisburg. He placed a large chain across the channel at Morgan's Point and charged tolls for vessels desiring passage. The chain remained in place until the mid-1880s when the United States government acquired the rights from the Morgan heirs (Sibley, 1968:93-99).

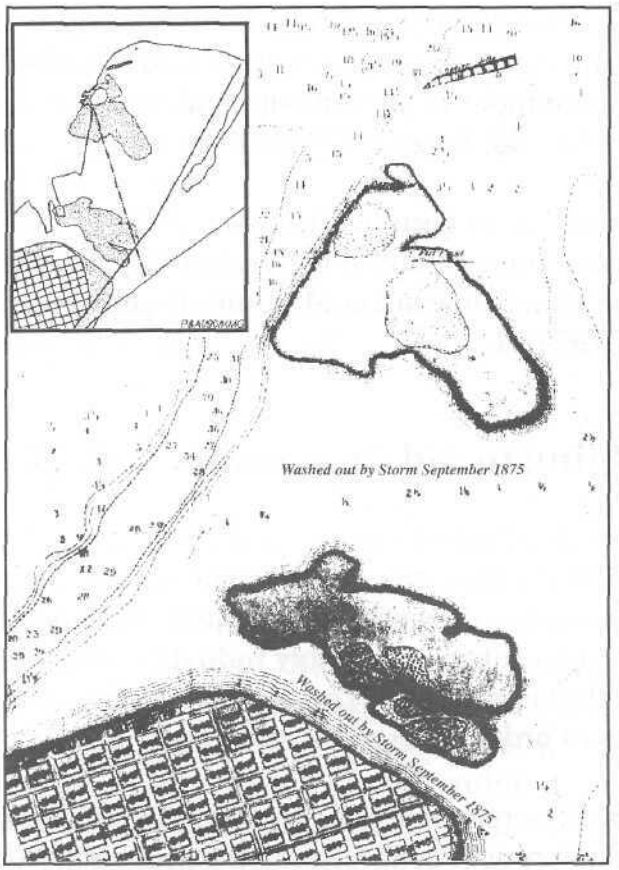

Illustration lOa.-East End of Galveston Island (1875). (Source: Freeman and Hannam, 1991.)

A hurricane on September 15-16, 1875, severely affected Galveston Bay. Storm tides reopened the old channel that cut through the marshes from the bay to the gulf on the eastern end of Galveston Island, cutting off old Fort Point *(Houston Weekly Telegraph,* 10-1-1875; Freeman and Hannum, 1991:26). On the San Jacinto River, tides reached fourteen to twenty feet above normal and destroyed the town of Lynchburg, an important transfer point for vessels unable to ascend Buffalo Bayou. Houston merchants feared that the almost-completed cut through Morgan's Point was ruined, but the channel actually benefited from the scouring waters *(Houston Weekly Telegraph,* 9-17, 24, 1875).

The Struggle for a Deep Water Port

The ever-increasing size of vessels coming to Galveston Bay required deeper water. In 1877 Congress authorized a 100-foot-wide and 12-foot-deep channel dredged from Bolivar to Red Fish Bar, a project that was eventually extended northward. The project, of course, was accomplished in slow stages. The Houstonians gleefully expected to compete on equal footing with Galveston's natural 12-foot-deep channel (Alperin, 1977:98). The deeper water signaled the end of the romantic riverboat days on Buffalo Bayou and by 1890 many were converted to steam barges. Businessmen in both Houston and Galveston wanted the larger capacity ocean-going vessels to call at their ports exporting

cotton, lumber, and grain, and to deliver coal and general merchandise (Sibley, 1968:103-04, 110-111).

Changing technology also improved dredging capabilities and the Corps of Engineers next project altered Galveston Bay forever. The Corps decided in 1880 that they would need jetties into the Gulf to maintain the long-range goal of a 25-foot-deep channel through the inner and outer bars desired by shippers. Their model was an 8-foot-bar at the mouth of the Mississippi River that had been scoured to a depth of 30 feet within five years by building 2-mile-long jetties (Alperin, 1977:40, 47).

The challenge was what kind of jetties could withstand the wave action in the Gulf. Without convenient stone quarries near the Texas coast, the Corps had experimented between 1874 and 1879 with gabions to scour the inner bar between Fort Point and Pelican Spit and to gradually deepen the entrance from the Gulf to 18 feet. They sank two rows of 6'x6' cylindrical wicker cages coated with cement and filled with sand northeastward from the end of the city breakwater to the edge of the Bolivar Channel and then southward toward the Gulf. A parallel row of gabions extended into the Gulf from Bolivar Peninsula. By 1879 the gabions had deepened the water over the inner bar from 12 to 20 feet but the pass to the Gulf was not noticeably improved. The Corps gave up on gabions and decided that a combination of wooden "mattresses" and stone was required (Alperin, 1977:27-33).

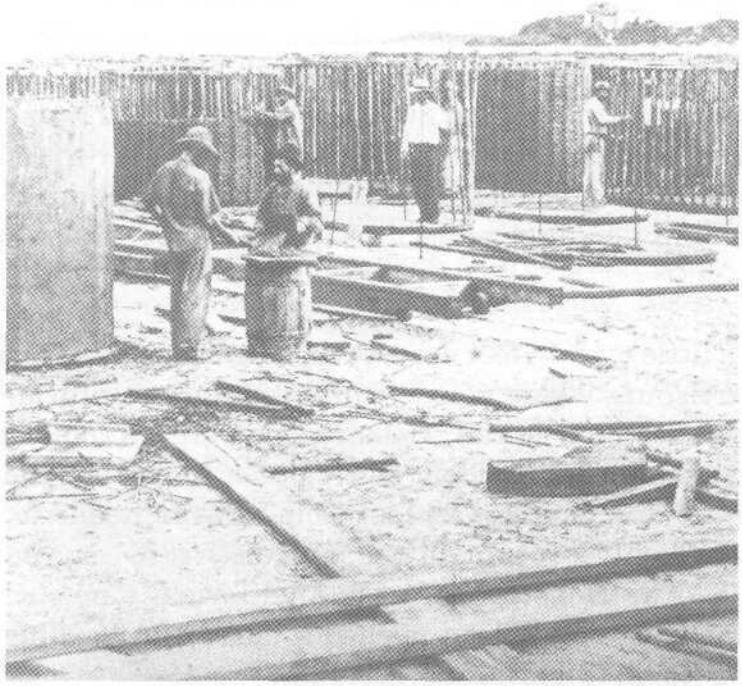

Illustration Wb.-Gabions. (Source: Alperin, 1977.)

Appropriations and technical problems plagued the work between 1880-1883 and it was 1887 before work resumed using clay and stone. Completed a decade later in 1897, the south jetty was six and one-half miles long, and the north jetty almost five. The water over the outer bar reached just over 25 feet while the inner bar was over 26 feet deep. Galvestonians had finally beaten their inland rival on the Bayou; trains loaded with grain and cotton by-passed Houston for the island (Alperin, 1977:43-55).

Galvestonians gloated briefly-their town was the largest city in Texas in 1880 with a population of 22,248 persons; it was followed by the army town of San Antonio with 20,550, Houston with 16,513, and Dallas with only 10,358 persons. Adecade later railroad building changed the order with Dallas soaring to 38,067, San Antonio 37,673, and Galveston in third place with 29,084 while Houston trailed in fourth place with 27,557. Houston movers and shakers began working for their own deep water in 1896. Nature also came to their aid in the form of the devastating 1900 hurricane that took 6,000 lives and destroyed property on Galveston Island. Many businesses decided to move inland for greater safety. By 1900 Houston had moved into second place with 44,633 people following San Antonio, still swollen to 53,321 with its army posts after the Spanish American War. Galveston, however, dropped to fourth with only 37,788 behind third-place Dallas with 42,638. During the decade following the completion of the Houston Ship Channel in 1914, Houston led in population and has continued to outstrip her state rivals *(Texas Almanac,* 1964:122-126).

Congressmen were convinced by Houston lobbyists in 1896 that a fifty-mile-long waterway was vital to commerce and appropriations were made to deepen the Houston Ship Channel to Harrisburg but not all the way to Houston. The original plan was for a 150-foot-wide channel from Bolivar Roads to Morgan's Point and to dump the spoil west of the channel in the lower bay "so as not to interfere with the tidal basin." In the upper bay, a dike was to be built east of the channel to prevent silting during heavy storms. Funding limited the project and in 1900 the Corps began dredging an 80-foot-wide channel 17 1/2 feet deep with a pile and brush dike from Morgan's Point to Red Fish Bar. After the 1900 hurricane, and the projected abandonment of Galveston as a major port, appropriations were increased and the Houston Ship Channel project resumed, deeper and wider (Alperin, 1977:100-102).

By 1908 the Houston Channel was a little over 18 feet deep. A turning basin was dredged at Long Reach two miles above Harrisburg where wharves and warehouses provided a transfer point for cargoes coming by or destined for rail. Houstonians were not completely satisfied and in 1909 the civic leaders made a precedent-setting offer to pay one-half of the cost to deepen the entire channel to a depth of 25 feet from Bolivar Roads to the Turning Basin. Harris County voters created a county navigation district to issue bonds and the work commenced in 1912. The Houston Ship Channel formally opened on November 10, 1914 when President Woodrow Wilson pushed a button in Washington that set off a cannon at the Turning Basin (Sibley, 1968:129-145).

Other Dredging Projects in Galveston Bay

Commercial interests wanted other channels for barge traffic. One of the earliest was the Gulf Intracoastal Waterway, commonly called the Intercoastal Canal. Local entrepreneurs had tried to open a channel from Galveston through West Bay to the

Brazos River in the 1850s but technology was unable to cope with bank cave-ins. The Corps of Engineers surveyed the entire Gulf coast in 1873, but funding was delayed until 1905. By 1913, dredging was completed from 200 miles southwest of Galveston to the Bay and joined the Houston Ship Channel. A decade later the canal was connected to New Orleans (Webb, 1952:1746-47).

The businessmen who founded Texas City dredged a 16-foot deep channel from the Galveston Channel to their new port in 1895-1896. The Corps took it over in 1899 and by 1905, there was a 7-mile-long channel 25 feet deep. The Texas City dike began as a pile construction in 1913 in order to protect the channel, but was replaced in 1931-34 by a rubble mound that became a popular fishing facility (Alperin, 1977:91, 272).

Likewise, the developer of Port Bolivar petitioned Congress in 1907 for a 25-foot-deep channel to his new port where the Santa Fe Railroad was constructing a large wharf. Railway cars coming down Bolivar Peninsula from the east would be transferred to barges that carried them across the channel to Galveston. The first ship docked in Port Bolivar in 1909 but the 1915 hurricane destroyed most of the port and it was not rebuilt (Wiggins, 1990:78-79).

Beyond the time span of this chapter but relevant to the subject are later channels. With the prospect of increasing barge traffic, a channel was dredged to allow larger towboats to enter the Trinity River from the Houston Ship Channel in the 1950s. Subsequently shorter channels were opened from the main channel through the San Jacinto estuary into Cedar Bayou and Bayport while a channel into Clear Lake is popular with pleasure boaters. Likewise a side channel leads into Double Bayou in Chambers County (Nautical Chart 11325, Galveston Bay, Texas, 1975).

No thought was given at this time to damaging the ecology of Galveston Bay by dredging channels. The main focus of the developers was for cheap and efficient water transportation for bulk cargoes and reflected the popular sentiment of the day; natural features should be used, extracted, or improved for the benefit of society or the individual.